



## Original Article

# The Effect of Cross-Fit Training on Some Physical and Functional Abilities to Develop the Skill of Spike Volleyball for Young

Dr. Fouad Abdel Latif Ghaidan<sup>1</sup>

<sup>1</sup> College of Physical Education and Sports Sciences, Kirkuk University, Iraq

Corresponding Author: \*Dr. Fouad Abdel Latif Ghaidan

DOI: <https://doi.org/10.5281/zenodo.10802134>

Abstract	Manuscript Information
<p>The research aimed to prepare (cross-fit) exercises for use in training the functional physical abilities of young people, as well as to identify the results of the impact of (cross-fit) exercises on the physical and functional abilities and developing the skill of spike volleyball for young people. Researchers used experimental methods, experimental groups and control groups. The research population was chosen intentionally, and they are the youth of the Diyala Governorate volleyball clubs for the season (2022/2023), and they are the (Badruz, Shahraban, Specialized School for Talent Care in Baqubah District) club, who number (58) players. As for the research sample, it was chosen randomly by The draw was Shahraban Club and the players of the Specialized School for Talent Care in Baqubah District, who numbered (32) players, with (16) players for each club, representing a percentage of (55.17%) from the community of origin. Through the results, the researcher concluded that cross-fit training had an impact. In developing some physical and functional abilities among members of the research sample, in addition to the fact that it contributed to tangible changes in both body mass as well as explosive strength and speed, and that the use of cross-fit exercises achieved the advantage of influencing some functional physical abilities compared to the usual method, and it Through the above, the researcher recommends the necessity of paying attention to (cross-fit) training and working to develop training curricula that take into account the physical components of players and the necessity of preparing special training curricula for using (cross-fit) training. ) for all ages and for both sexes because it has an effect in increasing the efficiency of the functional systems in the body.</p>	<ul style="list-style-type: none"> <li>▪ ISSN No: 2583-7397</li> <li>▪ Received: 05-02-2023</li> <li>▪ Accepted: 05-03-2023</li> <li>▪ Published: 10-03-2024</li> <li>▪ IJCRM:3(2);2024:34-38</li> <li>▪ ©2024, All Rights Reserved</li> <li>▪ Plagiarism Checked: Yes</li> <li>▪ Peer Review Process: Yes</li> </ul>
	<p><b>How to Cite this Manuscript</b></p>
	<p>Dr. Fouad Abdel Latif Ghaidan. The Effect of Cross-Fit Training on Some Physical and Functional Abilities to Develop the Skill of Spike Volleyball for Young. International Journal of Contemporary Research in Multidisciplinary. 2024; 3(2): 34-38.</p>

**Keyword:** Cross-fit, abilities, spike skill and volleyball.

## 1. Introduction

Progress to high levels is one of the most important goals of athletic achievement, and after athletic excellence is the result of training based on science and experience for individuals who possess physical, skill, tactical, psychological, and other abilities and are distinguished from others by the superiority of this ability that qualifies them to achieve the best achievements, and that sports training has become the ideal process for reaching athletes to levels that qualify them. To compete in tournaments

and competitions through their integrated preparation, which relies on training on different aspects that overlap with each other, such as the physical, skill, psychological, functional, and other aspects of preparing the athlete. Cross-fit training is one of the modern sports that has recently become popular around the world, as this type of exercise relies on competition between two or more people to perform exercises and has many similarities to other sports such as aerobic training and strength training. Big difference, the latter has great limitations a type of training, and

not relying on the principle of competition in training, as is the case in cross-fit training, in which the exercises are a mixture of all types of training, it is not only a specialized fitness program, but rather a deliberate attempt to improve physical efficiency. In all areas of physical fitness, which include the endurance ability of the respiratory and cardiac systems, the endurance ability of the muscles, strength, flexibility, ability, speed, coordination, dexterity in changing direction, balance, and accuracy <sup>[1]</sup>.

The game of volleyball is one of the games that requires varied training in terms of using high volumes and intensity that reach maximum limits as a result of the need for its skills to work with maximum intensity. The game has recently witnessed continuous development and change in the tactical and training aspects, in addition to the amendments that occurred in the legal rules of the game, which changed the pace of play to fast, in addition to the sequential intersection scoring system. Which has made most trainers at the present time work to raise the level of training volumes and intensity steadily, and we are not exaggerating, as it has been described as having reached its final limits among most international teams. The contents of one training unit have increased, in addition to increasing the number of repetitions and repetitions of one exercise <sup>[2]</sup>.

Hence, the importance of research became clear in identifying the effect of cross fit training, which is the newest and most widespread in many countries, as well as lack of use of modern methods and methods on the physical and functional capabilities of developing the skill of spike volleyball for young people.

### The problem of the research

The problem of the research is that the acquisition of physical skills depends on exercises based on scientific training and physiological principles. Although different exercises exist, the positive effects of developing physical fitness and maintaining health can be achieved. to develop physical abilities, of which cross-fit training is the most recent, and to demonstrate the superiority of this. The training method in developing physical, motor and functional abilities, unlike the training methods used in most mathematics, including volleyball, the researcher decided to start using cross-fit exercises in development of students' physical and functional skills and ability to spike volleyball.

### 2. Research Objectives

1. Practicing cross-fit activities for use in training young people's functional physical abilities.
2. Identifying the results of the impact the combination of cross-fit training and physical exercise is said to be beneficial. and functional capabilities and developing the skill of spike volleyball for young people.

### 3. Research Methodology

The researcher employed the experimental approach with experimental and control groups. as it was the most appropriate method to address the research problem.

### The research community and its sample

The research population was chosen intentionally, and they are

the youth of the Diyala Governorate volleyball clubs for the (2022/2023) season, and they are the (Badruz, Shahrban, Specialized School for Talent Care in Baqubah District) club, who number (58) players. As for the research sample, it was chosen randomly by lottery. They are the Shahraban Club and the players of the Specialized School for Nurturing Talent in Baqubah District. They number (32) players, with (16) players for each club, representing a percentage of (55.17%) of the community of origin. They were divided into two experimental and control groups, as they represented the players of the Specialized School for Nurturing Talent in Baqubah District. In the experimental group, Shahraban Club represented the control group.

### Means of collecting information, devices and tools

- **Means of collecting information**
  - Arab and foreign sources.
  - Personal interviews.
  - Tests and measurements used in research.
  - Note.
  - International Internet Information Network.
- **Devices and tools used in the research**
  - Japanese-made Nikone D5100 video camera.
  - Chinese-made Dell-Inspiron15 laptop.
  - Metal tape measure.
  - Adhesive tape with a width of (5) cm.
  - Medical scale.
  - Volleyball court is legal.
  - Legal volleyballs (3).
  - Volleyball net height (2.43 m).
  - 9 boxes of different heights.
  - Simple number 4.
  - 3 rubber ropes, 12 meters long.
  - Terraces (3) with heights of (25, 30, 35) cm
  - Obstacles (8).

### Field research procedures

#### 1. Tests used in the research

- First: Sit in a chair and use both hands to throw a 2kg medicine ball over your head <sup>[3]</sup>.
- Second: Vertical jump from a standstill (Modified Sargent test) <sup>[4]</sup>.
- Third: Testing strength characterized by speed, jumping walking distance on one leg (30 m) <sup>[5]</sup>.
- Fourth: Testing the accuracy of the skill of spike a volleyball <sup>[6]</sup>.

#### 2. Exploratory experience

The researcher conducted the exploratory experiment on September 3, 2023 at the late Ahmed Salam Sports Hall in Diyala Governorate on a sample of (5) players from outside the research sample, who did not take part in the primary experiment, and the purpose of it was:

- Knowing the time it takes to conduct and implement tests.

- Identify the extent to which players understand and understand the vocabulary of physical and skill tests.
- Ensure the validity of the tools.
- Difficulties and problems facing the researcher when conducting tests.

**3. Pre-test**

The pre-tests for the research sample were conducted on Sunday, September 10, 2023, in the gymnasium in Diyala Governorate at (4) pm. The researcher took into account the circumstances related to the tests with the necessary information, skills, tools, methods, and additional staff, in order to complete the project in the posttests.

**4. Exercises used**

The researcher designed the cross-fit exercises based on the requirements of the physical and intellectual capabilities of the participants in the research sample, taking into account the purpose of preparing these exercises, they were incorporated into the training regimen and during the special preparation period, members of the experimental group were exclusively given these exercises, taking into account the goal of preparing them. The researcher began devoting experimental instruction to the curriculum from Sunday 9/17/2022 until 11/8/2022 with two training sessions per week (Sunday and Wednesday) over a period of (8) weeks. As a result, the complete set of training units is (16) units, along with One training unit that took 90 minutes.

**Carrying out cross-fit exercises**

Cross-fit exercises were incorporated into the majority of the training curriculum, this was based on the concept of gradually increasing training loads in the training units to formulate the curriculum through the progression of training tasks. The goals of the training unit and its constituent sections were determined by the instructors, except for the physical component in the primary section. The researcher followed this approach, which involved all forms of training, the intensity, volume, and comfort of each form were taken into account. The first month employed the general format, which by its nature precluded the provision of exercises, it also noted that during the recovery period between sessions, a period of rest was granted (3 minutes).

**5. Post-test**

Posttests for the experimental sample were conducted on Sunday, November 12th, 2023 in the volleyball room in Diyala Municipality. After the period of applying the training curriculum, the researcher wanted to provide the conditions and procedures for the post-tests that had previously been conducted in the pre-tests.

**4. Results**

- **Displaying the results of the pre- and post-tests for the experimental and control groups for the research variables:**

**Table 1:** Shows the average, standard deviation, and T value of the experimental group's pre and posttests

Variables	Pretest		Posttest		Value (T)	Error rate	Indication
	Mean	Std	Mean	Std			
The explosive power of the arms	2.061	0.185	2.457	0.417	6.637	0.000	Sig.
The explosive power of the two men	157.25	9.929	171.02	10.334	3.963	0.000	Sig.
Power distinguished by speed	78.987	3.014	85.176	2.049	10.176	0.001	Sig.
Straight spike	5.312	1.302	6.875	1.147	3.425	0.004	Sig.
Diagonal spike	4.751	1.612	7.251	1.341	6.455	0.000	Sig.

**Table 2:** Shows the means, standard deviation, and T value of the control group for the pre and posttests.

Variables	Pretest		Posttest		Value (T)	Error rate	Indication
	Mean	Std	Mean	Std			
The explosive power of the arms	2.061	0.185	2.071	0.151	0.165	0.871	Non Sig.
The explosive power of the two men	157.251	9.929	164.875	7.356	2.160	0.047	Sig.
Power distinguished by speed	78.988	3.014	80.159	2.299	1.367	0.192	Non Sig.
Straight spike	5.312	1.302	5.687	1.138	0.824	0.423	Non Sig.
Diagonal spike	4.751	1.612	6.501	0.894	3.796	0.002	Sig.

- **Providing the results of the post tests that were conducted for the experimental and control groups regarding the research variables:**

**Table 3:** Shows the means, standard deviations, and (t) value calculated for the experimental and control groups for the post-posttests

Variables	Experimental group		Control group		Value (T)	Error rate	Indication
	Mean	Std	Mean	Std			
The explosive power of the arms	2.457	0.417	2.071	0.151	7.908	0.000	Sig.
The explosive power of the two men	171.02	10.334	164.875	7.356	2.175	0.046	Sig.
Power distinguished by speed	85.176	2.049	80.159	2.299	7.245	0.000	Sig.
Straight spike	6.875	1.147	5.687	1.138	3.335	0.005	Sig.
Diagonal spike	7.251	1.341	6.501	0.894	1.861	0.038	Sig.

## 5. Discussion of Results

The results of Tables (1) and (2) demonstrated that there were significant differences between the pre and post tests in settings regarding the value of the error percentage for the experimental and control groups, as well as the experimental group's approach. For the control group, there are additional significant differences in the post-posttests based on the results of Table (3) for the experimental and control groups, and in favor of the control group in the results of the exercises that were implemented in their curriculum (cross-fit). The investigator believes that these differences are caused by the necessity of a skill's enhancement. The crushing attack and the technical components of the gradual exercise regimen in each unit are accompanied by instruction in the technical performance of the skill, as well as the development of the muscular effort involved in the motor performance, e.g. The improvement of the legs's muscles led to an increase in the transmission of motor power, which resulted in an increase in the performance of this skill and its accuracy, both of which are considered an offensive capability. It has a significant effect on the result of the match, as the spike ability is considered paramount to the "offensive skill that can lead to a significant number of points in the first half of the match" <sup>[7]</sup>.

In addition, the development occurring in physical and functional capabilities is due to the nature of the exercises used, which contributed to increasing muscle strength and increasing speed, "Practicing flexibility exercises achieves lengthening of the muscles and increases the elastic property of the ligaments and muscles together, thus expanding the range of motion." <sup>[8]</sup> The researcher attributes The development in the strength variable is due to the nature of the exercises that were prepared based on the scientific foundations of the science of sports training, which contained various, modern and new exercises that led to an increase in motor balance, which led to the improvement of this ability in them. Input to the muscles and the lack of excessive movements, which led to the appearance of fluidity in movement and increased body coordination while changing its positions and directions <sup>[9]</sup>. Also, the development of the explosive power of the arms and legs contributed to increasing the individual's ability to jump high, which led to high efficiency in controlling the crushing blow because the player needs to jump. The highest strength in spike is the trainee's ability to perform movements in different directions, in a fast and sudden manner, and in different directions with a sudden stop. Successful crushing strikes are achieved as a result of the integration of physical and functional capabilities through correct motor transfer and the work of all muscles, as they are a chain interconnected with each other, as the development of variables The physical and functional systems under investigation are evidence of the efficiency of the circulatory and respiratory systems, because continued physical effort leads to an increase in the breathing muscles, the degree of air resistance in the air passages, and an increase in functional efficiency, which helped in the ability to resist fatigue and improve and develop lung functions <sup>[10]</sup>.

## 6. Conclusion

Through the results, the researcher concluded that cross-fit exercises affected the development of some physical and

functional abilities among members of the research sample, in addition to contributing to tangible changes in both body mass as well as explosive power and speed, and that the use of cross-fit exercises (fit) achieved the advantage of influencing some functional physical abilities compared to the usual method. From the above, the researcher recommends the necessity of paying attention to cross-fit training and working to develop training curricula that take into consideration the physical components of the players because of their importance in developing physical abilities. - Functional and motor, and the necessity of preparing special training curricula using cross-fit exercises for all age levels and for both sexes, as they have an impact in raising the efficiency of the functional systems in the body.

## References

1. Osama Kamel Rateb, Ibrahim Abd Rabbo. Growth and motivation in directing the child's motor activity and school sports activities, 1st edition: Cairo, Dar Al-Fikr Al-Arabi, AD; c1999.
2. Rasha Raed Hamed, Samer Saadoun Abdel Reda. The effect of CROSS FIT exercises on some physical, motor, and functional variables for young handball players: (published research, International Sports Science Journal. 2023;5(1).
3. Talha Hossam El-Din, others. The Scientific Encyclopedia of Sports Training (Strength – Ability – Strength Endurance – Flexibility): (Cairo, Al-Kitab Center for Publishing, 1997).
4. Abdul Razzaq Kazem Ali Al-Zubaidi. The effect of a proposed approach to special muscular strength in developing the performance of some special requirements skills on the ground movement mat: PhD thesis - College of Physical Education - University of Baghdad; c1999.
5. Qasim Hassan Kazem. The effect of special physical exercises and semi-competitive exercises in developing the physical and motor abilities associated with long shooting by jumping high for handball back line players, doctoral thesis, University of Babylon, College of Physical Education; c2011.
6. Muhammad Dhaye' Muhammad al-Azzawi. The effect of training using two different methods on developing explosive jumping power and its relationship to the accuracy of the smashing skill among young volleyball players, Master's thesis, University of Baghdad; c2007.
7. Muwafaq Asaad Mahmoud. Tests and Tactics in Football, Amman, Jordan: Dar Degla Publishers and Distributors; c2007.
8. Sarpong KA. The community of CrossFit: an ethnographic inquiry. University of Toronto (Canada); c2018.
9. Yimeng Z. Effects of crossfit training on body function and movement performance of aerobic athletes. Revista Brasileira de Medicina do Esporte. 2023 Apr 7;29:e2023\_0019.
10. Sinclair J, Sant B. The effects of cross-fit footwear on the kinetics and kinematics of running. Footwear Science. 2017 Jan 2;9(1):41-8.

**Creative Commons (CC) License**

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY 4.0) license. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.